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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KIM, KEVIN

ART UNIT PAPER NUMBER

2634

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/871,294

Applicant(s)

NATION, MED A.

Examiner

Kevin Y Kim

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6,9-14,17-23,25-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Davies (US 6,587,257).

Claims 1,25 are first considered. Referring to Fig. 5, Davies describes a modulation system and method, i.e., a harmonic upconversion, comprising the steps of;

Generating a first signal (5) having a fundamental frequency (fc),

Modulating (4) an input signal (1) with the first signal and

Tuning the modulation (13) to a harmonic of the fundamental frequency to produce a modulated signal having a carrier frequency (14). See col. 8, line 54 – col.9, line 7.

Claims 9, 17,18,21 are next considered. Referring to Fig. 5, Davies describes a modulation system/transmitter comprising;

An oscillator (LO) generating a first signal (5) having a fundamental frequency (fc),

A modulator (4) modulating (4) an input signal (1) with the first signal and

A bandpass filter (13) coupled to the modulator to the modulation (13) to a harmonic of the fundamental frequency to produce a modulated signal having a carrier frequency (14). See col. 8, line 54 – col.9, line 7.

“circuitry to communicate the modulated signal to a communication medium” such as an amplifier and antenna element is not shown but inherent.

Regarding claims 2,4,10,12,20,26 and 27 since the bandpass filter rejects all but a desired harmonic including the fundamental frequency (fc), it has to have “substantially more spectral energy near the harmonic than near the fundamental frequency.”

Regarding claim 3,11,19 and 28 see the bandpass filter (13) and col. 9, 5-7, that describes “establishing passband” where the passband includes frequencies near harmonic.

Regarding claims 5,13 and 22 see col.2, lines 14-16 teaching a frequency of 5fc for “an odd harmonic.”

Regarding claims 6,14 and 23 see col. 8, lines 54-55 teaching a complex input signal.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 8,15,16,24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davies as applied to claim 1 above in view of Abeno et al (US 5,844,449).

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Consider claims 7,15,24,30. Davies disclose all the subject matter claimed as explained in connection with claim 1 above but fails to teach the modulation including "at least one Gilbert cell multiplier." Abeno teaches that a Gilbert cell mixer is mainly used in a conventional phase modulator. See col. 1, lines 26-28. Thus, it would have been obvious to one skilled in the art at the time the invention was made to construct the phase modulator (4) of Davies with a Gilbert cell multiplier because it is mainly used in a phase modulator as taught by Abeno.

Regarding claims 8,16, see a bandpass filter (13) of Davies that is coupled to the output of a phase modulator that includes a Gilbert cell mixer in view of Abeno as explained above.

5. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davies as applied to claim 25 above.

Davies disclose all the subject matter claimed as explained in connection with claim 1 above but for the harmonic comprises "a third harmonic." But Davies teaches than a desired harmonic, for instance 5fc, could be selected, as discussed above. Thus, it would have been an obvious matter of design choice to select a particular harmonic, i.e., "a third harmonic," depending on the fundamental frequency of the local oscillator and a desired carrier frequency.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sorrells et al (US 6,542,722) teaches a harmonic unconversion. See Figs. 17-18 and cols. 25-26.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y Kim whose telephone number is 703-305-4082. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kvk



**CHIEH M. FAN  
PRIMARY EXAMINER**